

## REMARKS

Applicant appreciates the courtesies extended by Examiner Eric Compton during an interview on October 21, 2004 with Applicants' attorney, Jeffrey A. Wolfson. The comments appearing herein are substantially in accord with those presented and discussed during the interview.

Claims 1-23, as amended, and new claims 24-28 are pending for consideration by the Examiner. The title has been amended to more clearly and distinctly reflect that jewelry rings are being made by the claimed invention. The specification has been amended to correct typographical errors in the spelling of dilution on page 3 and on pages 10-11 to more explicitly disclose an inherent property of tungsten carbide--that tungsten carbide provides the jewelry articles with a grey color. This grey color is distinct from gold or other yellowish colors, although additives in minor portions or decorative inserts of such gold or yellowish colors can be included in the annular body so long as the hard material has a grey color from the significant tungsten carbide content.

Claim 1 and all other relevant claims have been amended to recite that the jewelry ring is formed according to a preferred embodiment of the invention. Claims 1 and 9 have also been amended to recite another preferred embodiment wherein the hard material consists essentially of tungsten carbide (*See, e.g.*, Specification at page 9, lines 12-17). This excludes nitrides, stainless steel, or other materials in amounts that would be significant enough to provide a gold color to the tungsten-carbide containing hard material. Claim 14 has been amended to provide antecedent basis for claim 16 by reciting a hardened superstructure. Claims 14 and 19 have also been amended to recite that the ring is integrally formed, *i.e.*, it is not formed of parts that are screwed together, such as a watch case with a stainless steel insert. A few other minor changes have been made as well, such as claim 20, which now recites that the binder material is metal (*See, e.g.*, Specification at page 9, lines 12-17).

New claim 25 recites that the annular ring defines an aperture adapted and configured to receive a body part (*See, e.g.*, Specification at page 4, lines 26-28; page 11, lines 22-25; and FIGS. 2-5). New claims 24 and 26 recite that the hard material or annular ring consists of tungsten carbide and a metal binder material (*See, e.g.*, Specification at page 6, lines 12-17). The annular rings recited in claims 9 and 24, and the annular ring of claim 26, however, may still include other adornments as part of the ring or visible on the annular ring, respectively, such as stones or other decorative pieces. New claim 27 recites a preferred embodiment where the hard material is formed by a single sintering, as the present invention

can elegantly achieve in a single step both the presintering and final sintering required by the prior art (*See, e.g.*, Specification at page 7, lines 9-21). New claim 28 recites an embodiment where the ring has inner and outer surface portions which are concentric and continuous (*See, e.g.*, FIGS. 2-5; specification at page 9, line 6 to page 10, line 27; and page 11, lines 16-21). No new matter has been introduced by way of these amendments or claim additions, such that the claims are in condition for entry and prosecution.

Claims 1-3, 19-21, and 23 were rejected under 35 U.S.C. § 102(b) for anticipation over GB 950127 to Lederrey, which is equivalent to U.S. Patent No. 3,242,664 to Lederrey ("Lederrey") on pages 2-3 of the Office Action. Lederrey is stated to disclose a method of making a jewelry article (a watchcase) by providing an annular body of a hard material including tungsten carbide and grinding an external facet using a grinding wheel leaded with a finely divided diamond powder.

Lederrey discloses a watch case including a portion made of tungsten carbide. Lederrey fails to recite a method for making a jewelry ring, *i.e.*, an annular band. Lederrey is directed to a watch case having a facing or surface portion that can be made of tungsten carbide. In describing the problems of the prior art, Lederrey teaches that the prior art used tungsten carbide and a binder to make tools, but that no one was able to manufacture workpieces on a commercial scale (Col. 1, line 40 to Col. 2, line 22). Further, Lederrey teaches that these work pieces could be formed by taking tungsten or titanium carbide powder, a powder of a bonding metal such as cobalt, and preliminarily sintering these to form a solid block that can be easily machined. Once these work pieces are cut from the block, a final sintering was then accomplished to achieve the desired hardness (Col. 1, line 65 to Col. 2, line 7).

Initially, the prior art discussed in Lederrey fails to teach jewelry rings formed from such tungsten carbide materials, likely because of the acknowledged difficulty of working with such materials. Lederrey, however, teaches away from the prior art by disclosing the manufacture of watch cases that *consist of* tungsten carbide, *i.e.*, there is no binder powder mentioned--only that they are made of sintered tungsten carbide (Col. 2, lines 47-55 and Col. 4, lines 34-39). Not only does Lederrey completely fail to teach that a binder powder should be included to provide a hard material that consists essentially of tungsten carbide, it also fails to teach forming jewelry rings. Moreover, Lederrey appears to teach away from using a binder as was done for work pieces, *i.e.*, tools, of the prior art. This disclosure seems to suggest an inoperative embodiment, since Applicant is not presently aware of any operable sintering process that can be used for forming hard tungsten carbide

articles without a binder. Thus, Lederrey fails to even teach the amounts of tungsten carbide, binder, or anything more specific about the materials by which its watch case of sintered tungsten carbide could be formed. The present invention, however, recites annular rings and in preferred embodiments rings formed of a hard material that consist essentially of, or consist of, tungsten carbide and a metal binder material.

Furthermore, Lederrey teaches that it is not advisable to make its whole case-band of a hard sintered metal, since it would not be practical to provide screwthreads in such a piece (Col. 3, lines 52-54). Lederrey teaches that it is best to include an inner metal ring of stainless steel (Col. 3, lines 55-57). Thus, Lederrey teaches away from the claimed methods of providing a jewelry ring that consists essentially of tungsten carbide, and in a preferred embodiment consists essentially of tungsten carbide and a metal binder material to facilitate formation of the claimed hard material.

Various dependent claims are also clearly patentably distinct from Lederrey. Claims 14 and 19 recite that the ring is integrally formed. Lederrey, however, fails to disclose--and in fact teaches away from--such a method. Lederrey's watch case is preferably formed to include a stainless steel insert to obtain the case, and is formed quite differently from the claimed method of providing a jewelry ring. Also, claim 24 recites that the annular ring defines an aperture adapted and configured to receive a body part. Lederrey fails to teach such an article or method of forming such an article, because the watch case is formed only to reside upon or adjacent to the wearer. Additionally, new claim 27 recites that a single sintering is used to form the jewelry ring of the present invention. At best, Lederrey is teaching to use a prior art two-step sintering process that is more cumbersome and difficult than a single sintering step, and involves cutting work pieces off a block of material that is not fully sintered in between the sintering steps (Col. 3, lines 17-42). Moreover, claim 28 recites an embodiment wherein the ring has inner and outer surface portions which are concentric and continuous. This is distinct from Lederrey, *e.g.*, a watch case, in both structure and the method of making the same. As noted above, Lederrey's watch case appears to require some type of band connection means, preferably posts formed to permit attachment of watch bands to the case, and thus does not teach the recited features of claim 28. In sum, Lederrey fails to teach each and every feature presently recited and it cannot therefore anticipate the claimed invention.

Claims 1, 3, and 17 were rejected under 35 U.S.C. § 102(b) for anticipation over U.S. Patent No. 3,669,695 to Iler et al. ("Iler") on pages 3-4 of the Office Action. Iler is alleged to disclose a method of making a jewelry ring (Col. 6, TABLE) with 0-70 volume

percent tungsten carbide having an annular shape, at least one external facet, and grinding the facet to provide a predetermined shape to give a pleasing appearance, with the hard material being long wearing and virtually indestructible.

On the contrary, Iler teaches a vast array of different materials in different amounts. In an optional embodiment, Iler discloses that up to 70 volume percent tungsten carbide can be included in a mixture with at least 20 and preferably a minimum of 30 volume percent of nitrides. The mandatory nitride component is used in order to obtain “an unusual golden tone” in the final product (*See* Col. 8, lines 48-53).

Even if tungsten carbide were to be added to the nitrides at an amount of 70 volume percent of the mixture, this calculates to an overall weight percentage of only around 80%. For example, an 80 weight percent tungsten carbide and 20 weight percent cobalt article equates to less than 70 volume percent using the following calculation:  $(80/15.63)/((80/15.63) + (20/8.85))$ . Moreover, although a patent reference is usable for its full disclosure, its teachings must be evaluated in connection with the features of the invention that are disclosed therein. The reference must be considered *as a whole*, and any alleged overlap must be shown with sufficient specificity (MPEP § 2131.03). Clearly, Iler is making products that **must** contain significant--if not substantial--amounts of nitrides, and that component must be present to obtain the desirable golden color apparently in an attempt to mimic the look of gold jewelry. It is highly unlikely that anyone following Iler's teachings would use the maximum optional amount of 70 volume percent of any carbide, much less tungsten carbide. In addition, Iler fails to teach or provide any actual example of being able to prepare a jewelry article or ring having less than 50 volume percent nitrides. In all of its 10 examples, only a single example (Example 7, which has no tungsten--much less tungsten carbide) has as low as 50 volume percent nitrides, while the other examples include amounts ranging from 55 volume percent upwards to 80 volume percent nitrides and higher. If the nitrides are present in an amount of at least 50 volume percent, then the maximum amount of carbide that optionally could be added cannot be more than 50 volume percent. This converts to a maximum amount of around, *e.g.*, 36 weight percent tungsten carbide for a blend of tungsten carbide and cobalt. Such a low weight percentage of tungsten carbide taught by Iler is much less than the method of providing a hard material that consists essentially of tungsten carbide presently recited by Applicant in the pending method claims.

Furthermore, it is unlikely that anyone following Iler's teachings would use or add this high an amount of tungsten carbide or any other carbide, since Iler further teaches that other components can and should be used in addition to the carbides--and that even

higher amounts of nitrides are preferred. As noted, Iler actually teaches nitride-based articles and the patent is even entitled "Titanium and/or Zirconium Nitride Based Articles of Jewelry." Iler therefore teaches and enables the use of significant amounts of nitrides that limits the amount of includable tungsten-carbide and other materials. He states that his articles should "consist essentially of nitrides" and can only "optionally contain oxides, carbides, borides, and metal" (Col. 5, lines 55-63). Iler further teaches, as noted above, that his nitride based jewelry articles have "an unusual golden tone" because of the "presence of the nitrides" (Col. 8, lines 48-53). Nitrides are also significantly softer and more easily worked than a hard material consisting essentially of, or consisting of, tungsten carbide, as presently recited. Moreover, Iler's examples all include various other materials besides nitrides, which would reduce the amount of weight percentage of any optional carbides that were included.

Claim 9 recites an even higher amount of tungsten carbide of at least about 85 weight percent. This amount is above the maximum disclosed by Iler for even his theoretical optional addition of a carbide, such as tungsten carbide in an amount of 70 volume percent. Moreover, the claimed hard material consisting essentially of tungsten carbide provided according to the present invention provides unexpected advantages in a annular ring that is long wearing and virtually indestructible during normal use thereof. Also, tungsten-carbide provides a silvery color rather than a gold one. Despite Iler's disclosure of scratch-resistance and corrosion resistance (Col. 8, lines 53-67), the nitride-based material of Iler provides a golden color and is softer than tungsten carbide-based materials and cannot provide the long wearing and virtually indestructible jewelry methods presently recited. Iler's comparison is made only against "conventional materials" such as stainless steel, silver, and gold (*Id.*). In comparison, the present invention recites methods including hard materials consisting essentially of, or consisting of, tungsten carbide materials, optionally with a metal binder material, which are a much harder material than the predominantly nitride based articles and methods of Iler. Indeed, Iler *teaches away* from tungsten carbide, and where tungsten is used the most tungsten material that is present in Iler's 10 examples is 30 volume percent *tungsten*. Not a single example in Iler includes a method of preparing a jewelry ring with tungsten carbide, much less in the amounts presently recited. Thus, Iler fails to disclose each and every claimed feature presently recited.

Indeed, Iler actually *teaches away* from the inclusion of significant amounts of carbides in its nitride-based jewelry articles by stating that such refractory carbides pose problems such as *high density*. Iler teaches articles having a much lower density than the

typical carbide, *e.g.*, of 9 g/cm<sup>3</sup> or lower (*See, e.g.*, Col. 2, lines 32-33). Moreover, claim 23 recites a density that is much higher than that taught by Iler. Iler further teaches away from tungsten-carbide articles by teaching that the problems of carbide-based prior art materials can be avoided by instead preparing jewelry articles having *substantial amounts of nitrides*, which impart a distinct and unusual golden color (Col. 1, lines 34-49), which nitrides are also softer than the claimed methods of providing a hard material consisting essentially of, or consisting of, tungsten carbide.

Various dependent claims also recite separately patentable features. For example, new claims 24 and 26 each recite that the hard material or the annular ring consist of tungsten carbide and a metal binder component, however, Iler teaches that nitrides must be present. For these reasons, Iler fails to disclose—much less teach—each and every feature recited in claim 1 and the various claims depending therefrom.

For all the above reasons, it is respectfully submitted that each and every element presently claimed is not identically disclosed in the known prior art, which has been made of record in this application. As such, the rejections under 35 U.S.C. § 102(b) over Lederrey or Iler should be reconsidered and withdrawn.

Claims 9-10, 14, 17, and 22 were rejected under 35 U.S.C. § 103(a) for obviousness over Lederrey in view of U.S. Patent No. 3,837,163 to Fujimori ("Fujimori"), JP 61-177351 to NIPPON TUNGSTEN ("NIPPON"), JP 64-008245 to Maruyama et al. ("Maruyama"), Iler, and U.S. Patent No. 4,740,935 to Goniati ("Goniati") on pages 4-8 of the Office Action. Fujimori is alleged to disclose a watch band of a hard tungsten carbide material polished to a mirror finish, while NIPPON is alleged to disclose a sintered alloy of tungsten carbide (*e.g.*, 82%) for watch cases, necklaces, and other ornamental parts with a high hardness. Maruyama cumulatively is alleged to disclose a hard material principally of tungsten carbide for watchbands and watchcases. The Office Action cites MPEP § 2144.07, which essentially states that the selection of a known material for its intended use supports a *prima facie* obviousness determination. The Office Action does concede that Lederrey does not teach the percentage or density of the hard material.

In addition to Lederrey failing to teach the features previously discussed, it also fails to teach the percentage or density of hard material as correctly noted by the Office Action. Moreover, none of these references teaches an annular jewelry ring formed from a hard material consisting essentially of, or consisting of, tungsten carbide alone or with a metal binder component. Although Goniati teaches jewelry including a ring, it teaches away from the claimed invention by disclosing to *avoid* making the jewelry entirely out of sintered

hard metals and to avoid setting such materials in contact with the skin (Col. 2, lines 30-32). Goniart also teaches only forming flat sintered hard metal pieces to be affixed to an anchoring body, and that these separate sintered pieces can be disposed of without wasting the body member should any deficiencies occur (Col. 2, lines 55-60).

Claims 4-8 and 10-16 were also rejected under 35 U.S.C. § 103(a) for obviousness over Lederrey in view of all the references above and further in view of Ogane[s]yan, U.S. Patent No. 1,863,618 to Brogan, Aus. Patent No. 208,883 to Hawke, and the Titanium Era website on pages 8-9 of the Office Action. Initially, we would point out that the Titanium Era website is an undated reference, which is believed to have derived the concept of this invention from the Applicant's commercially successful designs. Rather than being prior art, Titanium Era is evidence of copying and rebuts even a *prima facie* case of obviousness in that it demonstrates one of the secondary factors in favor of a finding of non-obviousness of the claimed invention.

Additionally, as the claims in each of these two rejections are dependent claims, and the invention recited in claim 1 is patentable as previously discussed, these rejections are believed to be moot as all claims depending therefrom are patentable as well.

In spite of this, Applicant wishes to point out a few additional reasons why the claims are patentable even over the above noted combination rejections.

Lederrey does not and cannot make an annular ring for his watch case, since there would be no means for attaching a watchband to the case. He also fails to disclose, suggest or teach that the watchband connection means can be attached or connected to the stainless steel insert. It is believed that this is not disclosed because there would be a possibility of separation of the insert from the tungsten carbide and loss of the insert or tungsten carbide component. For this additional reason, it is clear that Lederrey does not and cannot teach how to make an annular ring for his products. Nor would it have been obvious to do so, because there is no teaching, suggestion or motivation present in that patent that would lead one of ordinary skill in the art to even consider such a construction.

There also is no motivation to combine these references in either rejection. Due to the extreme difficulty of working with an annular-shaped hard material like tungsten carbide (*See, e.g.*, Goniart at Col. 2, lines 47-50), one of ordinary skill in the art would not have reasonably expected to achieve success in using conventional shaping methods in references like Oganesyan and Hawke to work tungsten carbide materials. Oganesyan clearly cannot be directed to a hard material of the type presently claimed, because it teaches use of conventional groove cutting and drill equipment to perform the methods therein. Thus, it

cannot provide motivation to provide an annular ring made of a hard material comprising tungsten carbide, or to grind at least one facet of such a material to a predetermined shape, as presently recited. One of ordinary skill in the art would not have been motivated to combine Oganessian or Hawke with Lederrey's materials or any other material that was too hard to grind or polish using conventional drilling or groove cutting equipment. Indeed, those of ordinary skill in the art would have expected to fail in providing an annular ring including a hard material like tungsten carbide as taught by Oganessian.

In fact, claims 10-16 relate to providing a cavity, groove, slot, notch, or hole, and possibly an insert, into the hard material. The secondary references fail to remedy the deficiencies of the references that allegedly disclose tungsten carbide articles, *e.g.*, Lederrey, Fujimori, NIPPON, Maruyama, Iler, and Goniati, as none of the references--even taken in any combination--do not suggest methods for providing such cavity, groove, slot, notch, or hole, or insert, into the hard material. In view of this lack of motivation to combine, and lack of reasonable expectation of success in the art, Applicant respectfully submits that a *prima facie* case of obviousness has not been demonstrated on the record. As such, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

Furthermore, even if a *prima facie* case of obviousness had been shown, Applicant hereby submits a Declaration of Trent West Under 37 C.F.R. § 1.132 (the "West Declaration") to demonstrate the commercial success of annular rings prepared according to the claimed invention. A copy of the West Declaration is attached.

The West Declaration provides evidence in addition to that of Titanium Era that the methods are seen as inventive by consumers and even fellow jewelry artisans. With minimal advertising and marketing (West Declaration at ¶¶ 5-6), the Applicant has developed a new market for jewelry rings prepared by the claimed method (West Declaration at ¶¶ 6-7). Moreover, the jewelry rings prepared according to the claimed methods has been tremendously commercially successful. In just over five years, Applicant has grown sales from nothing into a multi-million dollar business (West Declaration at ¶¶ 6 and 10). It is also believed, in view of the minimal advertising and marketing expenses, that it is the inventive features claimed in the application that have led to this commercial success (West Declaration at ¶¶ 8-10). In view of the evidence presented in the West Declaration, coupled with the copying by others in the jewelry field, *e.g.*, Titanium Era, that it is believed that even a *prima facie* case of obviousness has been clearly rebutted. As such, Applicant respectfully requests that the rejections under 35 U.S.C. § 103(a) be reconsidered and withdrawn.



Thus, Applicant now believes all claims to be in condition for allowance.  
Should the Examiner not agree with this position, a further telephone or personal interview is requested to resolve any remaining issues and expedite allowance of this application.

Respectfully submitted,

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